

REMARKS

Amendments to claims 1, 2, 22, and 29 are for the purpose of clarifying what Applicant regards as the invention. No new matter has been added.

I. Claims Rejections under 35 U.S.C. 103(a) based on Ogawa and Hughes

Claims 1-2, 4-7, 10-14, 17-33, 36-40, 43-47, 56-59, and 61-67 stand rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Ogawa (U.S. Patent No. 6,278,760) in view of Hughes et al. (U.S. Patent No. 4,432,370).

Claim 1 has been amended to recite creating a contrast-enhanced volumetric composite image using the first and the second sets of image data, wherein the contrast-enhanced volumetric composite image is created such that at least a portion of the contrast-enhanced volumetric composite image has a feature indicating cancerous tissue, and that *an image contrast for bone and tissue that does not contain the contrast agent at another portion of the contrast-enhanced volumetric composite image is reduced* (Emphasis Added). Claims 22 and 29 have been amended to recite similar limitations. Applicant respectfully submits that the amendments to claims 1, 22, and 29 have rendered the § 103 rejection moot with respect to Ogawa and Hughes.

In particular, Applicant agrees with the Examiner that Ogawa does not disclose or suggest using a contrast agent. Thus, Ogawa clearly also does not disclose or suggest a contrast-enhanced volumetric composite image, nor does it disclose or suggest a contrast-enhanced volumetric composite image having the features (i.e., indicating cancerous tissue, and having a reduced image contrast for bone and tissue that does not contain contrast agent) described in the claims. Also, Applicant notes that Ogawa specifically teaches energy subtraction image to eliminate bone image to highlight tissue image (column 5, lines 8-12). Thus, Ogawa clearly teaches away from the claimed subject matter, which describes that tissue image contrast is reduced. Since a prima facie case of the § 103 rejection cannot be established if a reference teaches away from the claimed subject matter, Applicant respectfully requests that the § 103 rejection be withdrawn for at least the foregoing reasons.

Hughes does not mention anything regarding bone and tissue *that does not contain contrast agent in a contrast-enhanced volumetric composite image*, and therefore fails to make up the deficiencies present in Ogawa. Since both Ogawa and Hughes fail to disclose or suggest

the above limitations, any combination of these references, and their combined teaching, cannot result in the subject matter of claims 1, 22, and 29. For these additional reasons, amended claims 1, 22, and 29, and their respective dependent claims, are believed allowable over Ogawa, Hughes, and their combination.

Also, according to pages 2-3 of the Office Action, Ogawa teaches creating “images of good contrast of soft tissue,” and the further purported motivation to combine Ogawa and Hughes is that the purported combination would “allow a doctor to view the vessels of interest. . . while also viewing the surrounding soft tissue.” As discussed, claims 1, 22, and 29 have been amended to describe that image contrast for both bone and tissue is reduced. Thus, the purported motivation stated in the Office Action actually teaches away from the subject matter of the claims as amended (requiring tissue image be reduced). For these additional reasons, Applicant respectfully submits that claims 1, 22, and 29, and their respective dependent claims, are allowable over Ogawa, Hughes, and their combination.

II. Claims Rejections under 35 U.S.C. 103(a) based on Ogawa and Acharya

Claims 1, 6-10, 14, 17, 19-21, 29, 32-37, 39-40, 43, 45-47, 56-57, and 60-67 stand rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Ogawa in view Acharya (U.S. Patent No. 6,922,462).

Claim 1 has been amended to recite creating a contrast-enhanced volumetric composite image using the first and the second sets of image data, wherein the contrast-enhanced volumetric composite image is created such that at least a portion of the contrast-enhanced volumetric composite image has a feature indicating cancerous tissue, and that *an image contrast for bone and tissue that does not contain the contrast agent at another portion of the contrast-enhanced volumetric composite image is reduced* (Emphasis Added). Claims 22 and 29 have been amended to recite similar limitations. Applicant respectfully submits that the amendments to claims 1, 22, and 29 have rendered the § 103 rejection moot with respect to Ogawa and Acharya.

As discussed, Applicant agrees with the Examiner that Ogawa does not disclose or suggest using a contrast agent. Thus, Ogawa clearly also does not disclose or suggest a contrast-enhanced volumetric composite image, nor does it disclose or suggest a contrast-enhanced volumetric composite image having the features (i.e., indicating cancerous tissue, and having a

reduced image contrast for bone and tissue that does not contain contrast agent) described in the claims. Also as discussed, Applicant notes that Ogawa specifically teaches energy subtraction image to eliminate bone image to highlight tissue image (column 5, lines 8-12). Thus, Ogawa clearly teaches away from the claimed subject matter, which describes that tissue image contrast is reduced. Since a *prima facie* case of the § 103 rejection cannot be established if a reference teaches away from the claimed subject matter, Applicant respectfully requests that the § 103 rejection based on Ogawa and Acharya be withdrawn for at least the foregoing reasons.

Acharya does not mention anything regarding bone and tissue that *does not contain contrast agent in a contrast-enhanced volumetric composite image*, and therefore fails to make up the deficiencies present in Ogawa. Since both Ogawa and Acharya fail to disclose or suggest the above limitations, any combination of these references, and their combined teaching, cannot result in the subject matter of claims 1, 22, and 29. For these additional reasons, amended claims 1, 22, and 29, and their respective dependent claims, are believed allowable over Ogawa, Acharya, and their combination.

III. Claims Rejections under 35 U.S.C. 103(a) based on Ogawa, Hughes, and Keyes

Claims 69, 71, and 73 stand rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Ogawa in view of Hughes, and further in view of Keyes (U.S. Patent No. 4,482,918).

Claim 69 recites that information regarding time-resolved kinetics of the contrast agent *based at least in part on the volumetric composite image* (Emphasis Added). Claims 71 and 73 recite similar limitations. Applicant agrees with the Examiner that Ogawa and Hughes do not disclose or suggest such limitations. According to the Office Action, figure 3 of Keyes illustrates a plot of how concentration of an x-ray contrast medium in a blood vessel would vary with time. However, Applicant respectfully notes that Keyes does not disclose or suggest that the plot is determined based at least in part on a *volumetric image*, nor is there anything in Keyes that discloses or suggests that the plot is determined using a *volumetric composite image*. Ogawa discloses volumetric images, and Hughes discloses contrast agent. However, neither of these references, nor their combination, discloses or suggests using a *volumetric composite image* to determine information regarding time-resolved kinetics of the contrast agent. Since none of the references discloses or suggests determining information regarding time-resolved

kinetics of the contrast agent in the manner described in claims 69, 71, and 73, any purported combination of these references does not and cannot result in the subject matter of these claims. For at least the foregoing reasons, Applicant respectfully submits that the prima facie case of the § 103 rejection for claims 69, 71, and 73 has not been established, and requests that the § 103 rejection be withdrawn for these claims.

Also, Applicant respectfully notes that in order to sustain a prima facie case of a § 103 rejection, the arrangement of the claim elements must be suggested. In this case, the purported combination of the elements (purported information regarding time-resolved kinetics of contrast agent from Keyes, volumetric image from Ogawa, and contrast from Hughes) still does not result in the claimed subject matter because the claim requires that these elements bear a certain relationship with each other – which relationship is not disclosed or suggested in any of the cited references, nor is it disclosed in the purported combination of the cited references. As the record stands, determining information regarding time-resolved kinetics of the contrast agent *in the manner* described in the claims (i.e., *based at least in part on the volumetric composite image*) is unknown but for Applicant’s application. For these additional reasons, Applicant respectfully submits that the prima facie case of the § 103 rejection for claims 69, 71, and 73 has not been established, and requests that the § 103 rejection be withdrawn for these claims.

Furthermore, the purported motivation (“to determine the concentration of iodine in the vessels of interest at key moments in order to *acquire the best possible images* for the diagnosis”) to combine Keyes with Ogawa and Hughes stated on page 10 of the Office Action indicates that the Examiner is considering using time-resolved kinetics information from Keyes to form better images from Ogawa and Hughes. However, Applicant respectfully submits such motivation is improper. This is because the claims describe using volumetric contrast image to obtain information regarding time-resolved kinetics of contrast agent, not the other way around (i.e., not using time-resolved kinetics information to form image(s), as alleged to be the motivation in the Office Action). For these additional reasons, Applicant respectfully submits that the prima facie case of the § 103 rejection for claims 69, 71, and 73 has not been established, and requests that the § 103 rejection be withdrawn for these claims.

CONCLUSION

If the Examiner has any questions or comments regarding this amendment, please contact the undersigned at the number listed below.

To the extent that any arguments and disclaimers were presented to distinguish prior art, or for other reasons substantially related to patentability, during the prosecution of any and all parent and related application(s)/patent(s), Applicant(s) hereby explicitly retracts and rescinds any and all such arguments and disclaimers, and respectfully requests that the Examiner re-visit the prior art that such arguments and disclaimers were made to avoid.

The Commissioner is authorized to charge any fees due in connection with the filing of this document to Vista IP Law Group's Deposit Account No. **50-1105**, referencing billing number **VM 03-029 US**. The Commissioner is authorized to credit any overpayment or to charge any underpayment to Vista IP Law Group's Deposit Account No. **50-1105**, referencing billing number **VM 03-029 US**.

Respectfully submitted,

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